

WHAT IS CLAIMED IS:

1. A detoxified and immunologically active protein  
5 having an amino acid sequence of heat-labile enterotoxin of  
*E. coli*, in which position 63 or positions 110 and 112 is  
mutated in a site-directed manner.

2. A detoxified and immunologically active protein  
10 having an amino acid sequence of heat-labile enterotoxin of  
*E. coli*(SEQ ID NO:3), in which serine residue at position  
63 is substituted with tyrosine.

3. A DNA sequence(SEQ ID NO:4) encoding the  
15 detoxified and immunologically active protein of claim 2.

4. A recombinant expression vector pBlueKS-/LTS63Y  
which comprises the DNA of claim 3.

20 5. *Escherichia coli* Top10F'-pBlueKS-/LTS63Y(KCTC  
0648BP) transformed with the recombinant expression vector  
pBlueKS-/LTS63Y of claim 4.

6. A detoxified and immunologically active protein  
25 having an amino acid sequence of heat-labile enterotoxin of  
*E. coli*(SEQ ID NO:5), in which glutamic acid residues at  
positions 110 and 112 are deleted.

7. A DNA sequence(SEQ ID NO:6) encoding the  
30 detoxified and immunologically active protein of claim 6.

8. A recombinant expression vector pBlueKS-/LTΔ  
110/112 which comprises the DNA of claim 7.

35 9. *Escherichia coli* Top10F'-pBlueKS-/LTΔ110/112(KCTC  
0649BP) transformed with the recombinant expression vector  
pBlueKS-/LTΔ110/112 of claim 8.

10. A process for preparing the detoxified and immunologically active protein(mutant LT) of claim 1 which comprises the steps of culturing a recombinant  
5 microorganism transformed with an expression vector comprising a DNA encoding the mutant LT and isolating the recombinant mutant LT from the culture.

11. The process for preparing the detoxified and  
10 immunologically active protein of claim 10, wherein the recombinant microorganism is *Escherichia coli* Top10F'-pBlueKS-/LTS63Y(KCTC 0648BP) or *Escherichia coli* Top10F'-pBlueKS-/LT/110/112(KCTC 0649BP).

12. A diarrheal vaccine comprising an active  
15 ingredient of the detoxified and immunologically active protein of claim 1 and pharmaceutically acceptable carrier.

13. A mucosal adjuvant comprising an active  
20 ingredient of the detoxified and immunologically active protein of claim 1.